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Bymea LED Co., Ltd.
Bymea E Business Co., Ltd.
Xiamen Grace Solar Technology Co., Ltd.



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About Grace Solar

Xiamen Grace Solar Technology Co., Ltd. is a leading manufacturer of photovoltaic mounting system and a big supplier of PV products. High-tech and innovation help Grace Solar to always keep pace with the whole industry and the world market. We devote to manufacturing and marketing the steadiest, most trustable and cost-effective solar mounting system solutions to our customers and faith in the belief of "best service". As one of the largest PV solar products exporters in China, the industrial pioneer -Grace Solar has already installed its products in more than 100 countries and regions since its foundation.



RESEARCH AND DEVELOPMENT

Grace Solar emphasizes specialty and innovation on its products and offers good guarantee and professional support to customers.

Grace Solar values talent people a lot. A professional research and development team that is led by qualified and experienced elite is set up in the birth of the company. The application of the most advanced equipments turns the company to an industrial leader of the structural design and system performance. Grace Solar cherishes its intellectual property and software copyrights of high-tech products including Ground Mounting System, Roof Mounting System









MANAGEMENT CONCEPTS

Grace Solar brought forward the standardized and internationalized management concept at the very beginning of its establishment. It positively introduces the international management systems such as APQP, FMEA, ISO9001:2008, CP Control Plan, MSA, SPC and applies them strictly in R&D, manufacturing, marketing, service etc. phases. Furthermore, Grace Solar strives to acquire international authority certification for the products and actively studies with international and domestic certification institutions such as TUV, CE, CQC, SAA, AS/NZS 1170 and Golden Sun.

SERVICE NETWORKS

Due to long term quick feedbacks for the reliable and qualified products and services, Grace Solar wins trust from system integration companies, installers and distributors worldwide. Cooperating with several strong facilitators in different areas, Grace Solar creates global service networks to offer superior and efficient services.

OFFICE







Group Company

Overseas Marketing Department

Meeting Room

FACTORY







Aluminum

Oxidizing

Assembly

PACKING







Rail Packing

Ground Screw Packing

Support Rail Packing



If you are looking for PV mounting system, you can surely trust us. The mounting system from Grace Solar enjoys **6** advantages:

Competence

We serve more than 500 clients and our mounting system has already been installed around the world especially in Japan and Australia.

4GW project implemented since 2009.



Wide Applicability

Design of the mounting system is based on the international standards that can fit for all kinds of solar module types in the world.



3 Manufacture

We apply the high strength aluminum alloy 6005–T5 to ensure the mounting system durable and in supreme quality. High capacity and fluent production line makes it possible to mass manufacture. Month capacity is up to 120MW–150MW; for project less than 5MW, the system can be shipped out within two weeks.



4、

Best Value for Money

We offer one stop business from design, manufacture to sell; this lowers the cost of our product and makes our price competitive compared with other brands in the same quality.



5、

Shipment

We are in a seaport city and can deliver the mounting system to almost any corner in the world upon request.





Quality Warranty

We promise 10 years warranty.

Predicting product life about 20 years.



Content

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AL-GROUND MOUNTING SYSTEM IV



Technical Information

Install Site	Open Field
Tilt Angle	0 - 45°
Structure Height	<4m
Max Wind Speed	60m/s
Snow Load	1.4KN/ m ²
Standard	AS/NZ 1170, JIS C8955

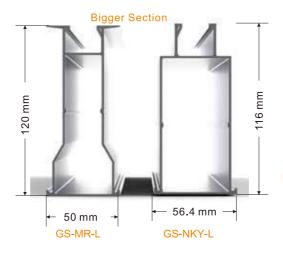
Aluminum Alloy & SUS A2 - 70	
Natural Color, Black	
Anodizing	
Concrete	
Ground Screw	
10 Year Quality Warranty	





Introduction

New Main Rail



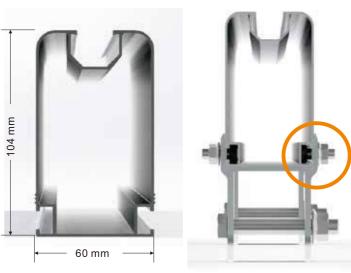


Special slot design

More side fastening area, More steady for the rail

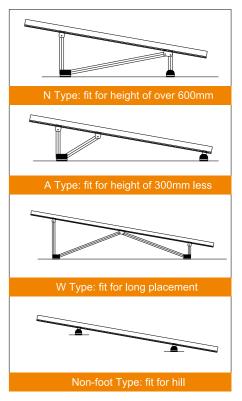
Special slot design for the rail splice

New Support Beam



Bigger Section

Wave surface for a better match

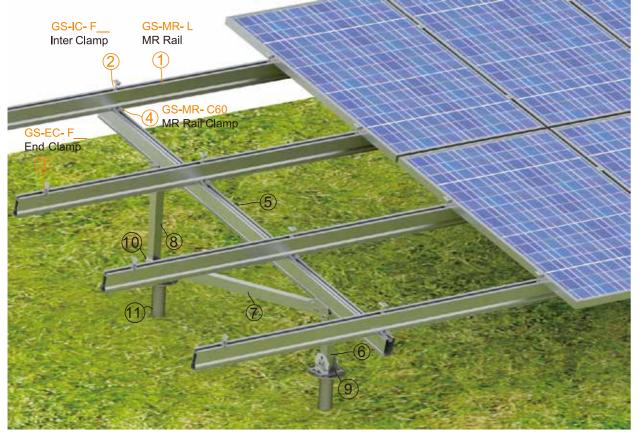


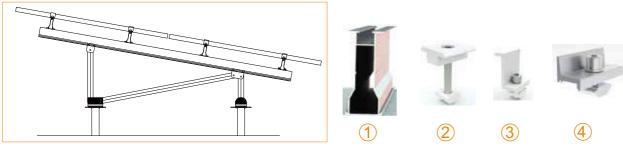
various structures for the different ground types



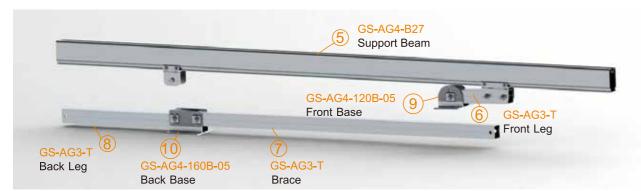
APPLICATION

Portrait Placement





Pre-assembly in the factory to save time and labor cost.



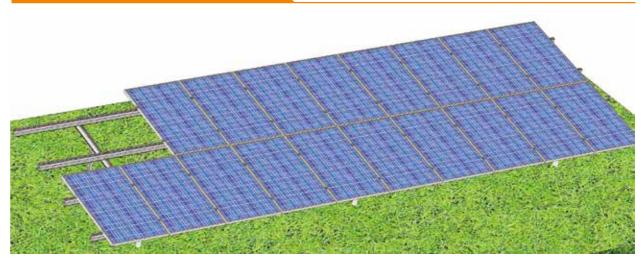
PROJECT EXAMPLE

Step 1: Project Information

Solar Panel Size:	1650x992x40mm
Tilt Angle:	30°
Module Orientation:	Portrait
Foundation:	Ground Screw Concrete

Flood Height:	500mm
Wind Speed:	40m/s
Unit Array:	2* 10(20pcs)

Step 2: Planning



Step 3: Components List

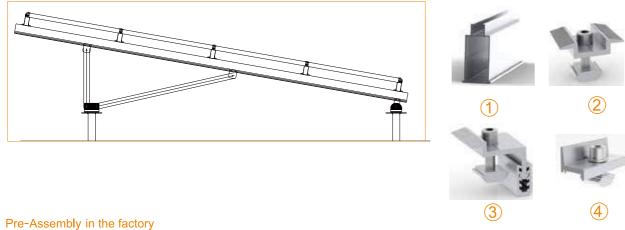
Item	Description	Spec.	Qty	Package
GS-MR-5100	GS MR Rail 5100	5100mm	8 pcs	148pcs/pallet
GS-MR-SP	GS MR Rail Splice	400mm	4 pcs	9pcs/Box,2Boxes/CTN
GS-MR-C60	GS MR Rail Clamp	60mm	24 pcs	100pcs/Box,4Boxes/CTN
GS-IC-F40	GS Inter Clamp	40mm	36 pcs	100pcs/Box,4Boxes/CTN
GS-EC-F40	GS End Clamp	40mm	8 pcs	100pcs/Box,4Boxes/CTN
GS-AG4-B27A	AG4Support Beam,2740mm	2740mm	3 pcs	
GS-AG3-T-1150	AG 3 Leg、1150mm	1150mm	3 pcs	D
GS-AG3-T-950	AG 3 Leg、950mm	950mm	3 pcs	Pre-assembly
GS-AG4-160B-05	AG 4 Back Base-05	160mm	3 pcs	
GS-AG4-120B-05	AG 4 Front Base-05	120mm	3 pcs	
GS-F76C-1600-T3	Ground Screw	76x1600mm	6 pcs	160pcs/pallet



APPLICATION

Landscape Placement







PROJECT EXAMPLE

Step 1: Project Information

Solar Panel Size:	1650x992x40mm
Tilt Angle:	30°
Module Orientation:	Landscape
Foundation:	Ground Screw Concrete

Flood Height:	500mm
Wind Speed:	40m/s
Unit Array:	4*6(24pcs)

Step 2: Planning

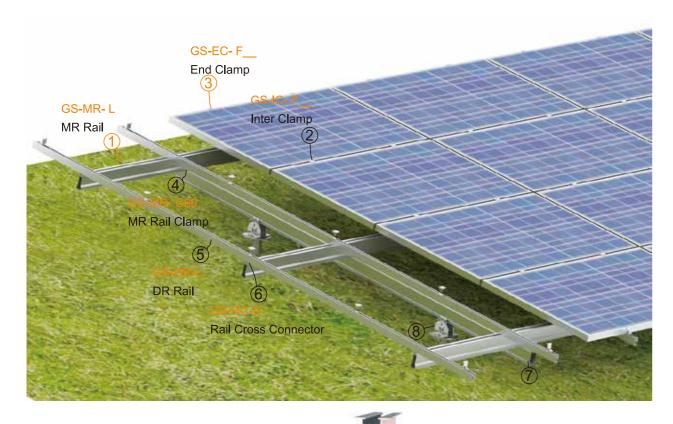


Step 3: Components List

Item	Description	Spec.	Qty	Package
GS-NKY-4800	GS NKY Rail 4800	4800mm	10pcs	128pcs/pallet
GS-NKY-SP	GS NKY Rail Splice	400mm	5pcs	6pcs/Box,2Boxes/CTN
GS-MR-C60	GS MR Rail Clamp	60mm	30pcs	100pcs/Box,4Boxes/CTN
GS-KIC-F35/40	KYR Inter Clamp	35-40mm	36pcs	100pcs/Box,4Boxes/CTN
GS-KEC-F40	KYR End Clamp	40mm	24pcs	100pcs/Box,4Boxes/CTN
GS-AG4-B43A	AG 4 Support Beam,4300mm	4300mm	3pcs	
GS-AG3-T-1750	AG 3 Leg、1750mm	1750mm	3pcs	
GS-AG3-T-1610	AG 3 Leg、1610mm	1610mm	3pcs	Pre-assembly
GS-AG4-160B-05	AG 4 Back Base-05	160mm	3pcs	
GS-AG4-120B-05	AG 4 Front Base-05	120mm	3pcs	
GS-F76C-1600-T3	Ground Screw	76x1600mm	6pcs	160pcs/pallet



Hill Application

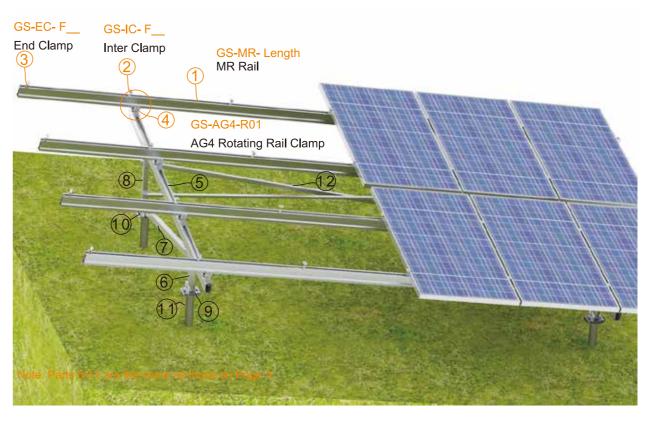


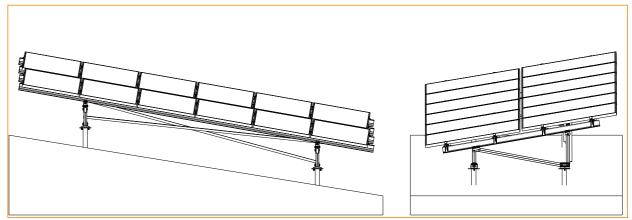


Pre-assembly in the factory



Golf Course Application







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Completed Project Image



AG4 + Ground Screw, Pile Machine



East-West Slope, AG4 + Ground Screw, 1.16MW

Completed Project Image



Snow Region Solution

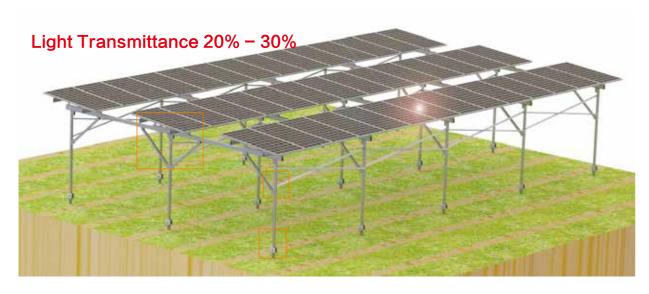


Salt Injury Area Solution



AL FARM PV MOUNTING SYSTEM

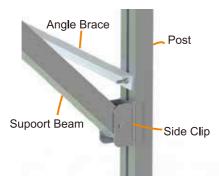
Application ① Flat Type



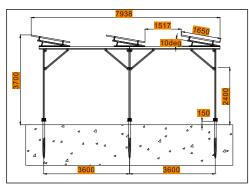
Product Features

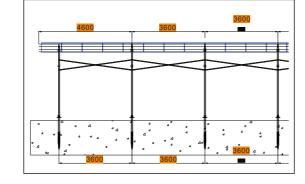
- 1. 100% aluminum
- 2. aesthetic appearance, strong and easy-installed
- 3. high flexibility
- 4. 10 years quality warranty











Gracesolar Standard Pattern

Project Information

Solar Panel Size	1650x992x40mm	Height	2500 mm
Power	260 W	N-S Span	3600 mm
Tilt Angle	10°	E-W Span	3600 mm
Unit Array	3x16	Power/Unit	12480w
Max Snow Load	≤50cm	Max Wind Speed	≤38m/s

Item	Description	Spec.	Qty
GS-MR-4600	MR Rail	4600 mm	12 pcs
GS-MR-3600	MR Rail	3600 mm	12 pcs
GS-MR-SP	MR Rail Splice	400 mm	18 pcs
GS-MR-C60	MR Rail Clamp	60 mm	60 pcs
GS-IC-F40	Inter Clamp	40 mm	90 pcs
GS-EC-F40	End Clamp	40 mm	12 pcs
GS-NT01-10	NT Triangle Bracket 10°	10°	15 pcs
GS-DM-25-A	D Clamp	M8	60 pcs
GS-AG4-BA38-2H2R	AG4 Support Beam	3800 mm	10 pcs
GS-AG3-T-1250	Support Tube	1250 mm	20 pcs
GS-KT-H110	NVR Clip	110 mm	40 pcs
GS-AG4-KT-3000	Brace	3000 mm	15 pcs
GS-AG-B-21	AG Base	160 mm	15 pcs
GS-AS40-M8-3680	Angle Brace	3680 mm	24 pcs
GS-FA-S830	Hexagon Bolt	M8*30	60 pcs
GS-F76C-1600-T3	Grand Screw	76x1600xT3x2	15 pcs

Project Image



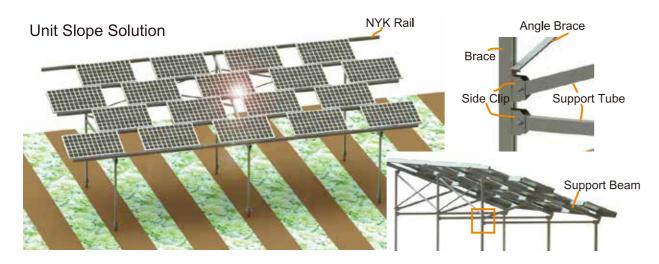




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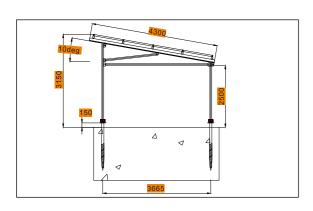


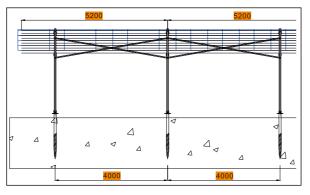
Application 2 Slope Type



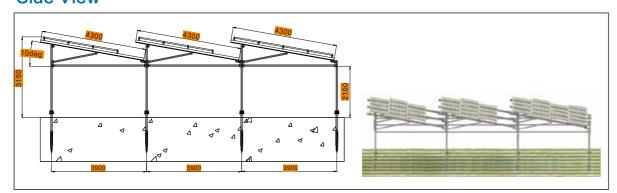
Product Features Light Transmittance 26%

- 1. 100% aluminum
- 2. aesthetic appearance, strong and easy-installed
- 3. high flexibility
- 4. 10 years quality warranty





Side View



Gracesolar Standard Pattern - Panel Staggered

Project Information

Solar Panel Size	1650x992x40mm	Height	2500 mm
Power	260 W	N-S Span	3663 mm
Tilt Angle	10°	E-W Span	4000 mm
Unit Array	4x5	Power/Unit	4680w
Max Snow Load	≤50cm	Max Wind Speed	≤38m/s

Item	Description	Spec.	Qty
GS-NKY-5000	NYK Rail	5000 mm	10 pcs
GS-NKY-SP	NYK Rail Splice	400 mm	5 pcs
GS-MR-C60	MR Rail Clamp	60 mm	30 pcs
GS-KIC-F35/40	Inter Clamp	35-40	24 pcs
GS-KEC-F40	End Clamp	40 mm	22 pcs
GS-AG4-BA43-H2R	AG4 Support Beam	4300 mm	3 pcs
GS-AG3-T-1830	N-S Span Brace 1	1830 mm	3 pcs
GS-AG3-T-3550	N-S Span Brace 2	3550 mm	3 pcs
GS-AG4-KT-2500	Front Leg, Tube	2500 mm	3 pcs
GS-AG4-KT-3150	Back Leg, Tube	3150 mm	3 pcs
GS-KT-H110	NVR Clip	110 mm	15 pcs
GS-AG-B-21	AG Base	160mm	6 pcs
GS-AS40-M8-4100	Angle Brace	4100 mm	4 pcs
GS-FA-S830	Hexagon Bolt	M8*30	6 pcs
GS-F76C-1600-T3	Grand Screw	76x1600xT3x2	6 pcs

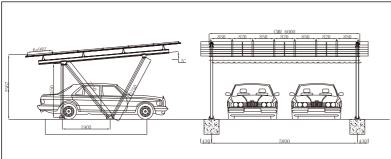
Project Image

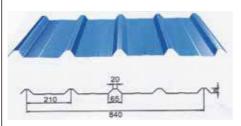




GS CARPORT PV MOUNTING SYSTEM







Roof Type Reference

Introduction

This highly pre–assembly carport mounting system is made with high–strength aluminum alloy to ensure its safety and at the same time offer installation convenience and aesthetic appearance. Grace Solar Carport PV Mounting System utilizes a special structure design which maximizes the space by adopting two cars as a unit or free combination upon request. It is 10 years quality warranty.

Technical Information

- Install Site: Open Field
- Max Wind Speed: 42m/s
- Snow Load: 50cm
- Module Type: With Frame
- Module Orientation: Portrait
- Materials: Aluminum Alloy
- Finishing: Anodizing
- Foundation: Concrete

If you would like a site visit, please contact Grace Solar.

Grace Solar Standard Pattern

Project Information

Solar Panel Size	1650x992x40mm	Height	2500 mm
Power	260 W	N-S Span	1905 mm
Tilt Angle	5°	E-W Span	5800 mm
Unit Array	6x4	Power/Unit	6240w
Max Snow Load	≤50cm	Max Wind Speed	≤42m/s

Item	Description	Spec.	Qty
GS-CMR-6000	CMR Rail	6000 mm	4 pcs
GS-CMR-C40	CMR Rail Clamp	60 mm	32 pcs
GS-DR-3100	DR Rail L3100mm	3100 mm	16 pcs
GS-DR-SP	DR Rail Splice	150 mm	8 pcs
GS-RC-D	DR Rail Clamp	40 mm	32 pcs
GS-IC-F40	Inter Clamp	40 mm	40 pcs
GS-EC-F40	End Clamp	40 mm	16 pcs
GS-CVR-5200	Support Beam	5200 mm	2 pcs
GS-T100-2150	Square Pipe	2150 mm	2 pcs
GS-T100-2750	Square Pipe	2750 mm	2 pcs
GS-T100-2750	Square Pipe	2750 mm	2 pcs
GS-CA-B01	Base	200-300	2 pcs
GS-TR840-3000	T Roof	3000 mm	14 pcs

Project Image









Double-Post Mounting System



Technical Information

Install Site	Open Field
Tilt Angle	0~45 deg
Building Height	Up to 4m
Max Wind Speed	46m/s (JIS)
Max Snow Load	1.4KN/m2
Standards	JIS C 8955:2011
Warranty	10 Years Warranty
Main Rail Material	High-strength Aluminum
Brace Material	Carbon Steel
Fasten Material	SUS A2-70

Product Introduction

Double—Post Mounting System is applicable for large—scale ground power plant in all kinds of terrains. It takes the open carbon steel section as the support brace. Assisted by the pile machine for piling, this system can increase at least 50% of the installation speed compared to the ground screw mounting, and at the same time leave out the step of connecting the foundation and the brace. Double—Post Mounting System makes installation much easier and tremendously save your time and labor cost. The rotating Top Cap can rotate for three orientations in wide—angle and suitable for any slope or wavy ground.

Finish	Anodized
	Hot-dip Galvanized Steel
Foundation	Carbon Steel Post Piling
	Concrete



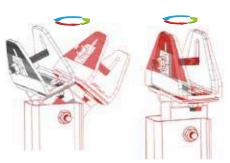
Functions and Features

Adjustable Top Cap

Three Orientational Rotation Sketch



Side View

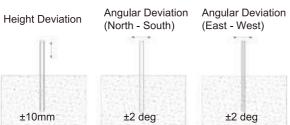




Front View

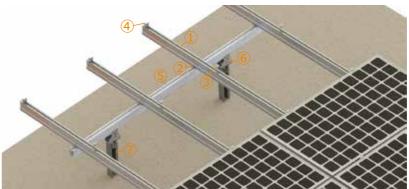


Post Construction Requirements



Application

Portrait Placement

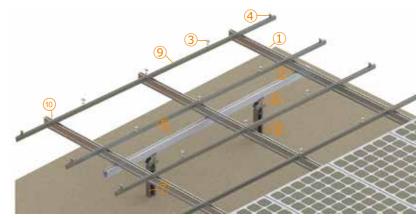


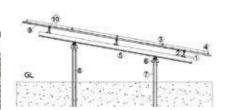


Item	Description	Material	Finish
GS-MR-Length	MR Main Rail	AL6005-T5	Anodized
GS-MR-C60	MR Rail Splice	AL6005-T5	Anodized
GS-IC-F	Inter Clamp	AL6005-T5	Anodized
GS-EC-F	End Clamp	AL6005-T5	Anodized
GS-AG4-B27-2R	Assembly of AG4 Beam	AL6005-T5	Anodized
GS-PG02-TC	Assembly of Top Cap	AL6005-T5	Anodized
GS-PG02-OPXXX	Front Open Post	Carbon Steel	Hot-dip Galvanized
GS-PG02-OPXXX	Back Open Post	Carbon Steel	Hot-dip Galvanized



Landscape Placement





Item	Description	Material	Finish
GS-MR-Length	MR Main Rail	AL6005-T5	Anodized
GS-MR-C60	MR Rail Splice	AL6005-T5	Anodized
GS-IC-F	Inter Clamp	AL6005-T5	Anodized
GS-EC-F	End Clamp	AL6005-T5	Anodized
GS-AG4-B27-2R	Assembly of AG4 Beam	AL6005-T5	Anodized
GS-PG02-TC	Assembly of Top Cap	AL6005-T5	Anodized
GS-PG02-OPXXX	Front Open Post	Carbon Steel	Hot-dip Galvanized
GS-PG02-OPXXX	Back Open Post	Carbon Steel	Hot-dip Galvanized
GS-DR-Length	DR Main Rail	AL6005-T5	Anodized
GS-RC-D	DR Rail Splice	AL6005-T5	Anodized



PILE GROUND MOUNTING SYSTEM



Introduction

GS Pile Ground System is applied for large commercial and utility PV systems on non-sandy ground, suitable for both framed and frameless module installation.

In GS Pile Ground System, Open Post can be piled into the ground quickly 1–2 meters by pile machine, and then easily mounting the pre-assembled Al-Beam structure, GS Rail with

Our mission is to simplify your installation and ensure the structure safety. Grace Solar, your best choice.

Benefits

*Easy Installation

Parts have been highly pre-assembled in the factory to save your installation time

*Safety and Reliability

Structure has been checked and tested strictly to against the extreme weather condition

*Flexibility and Adjustable

Smart design reduces the difficulties in the installation on most conditions

10-years warranty for the material and structure is provided by Grace Solar

Technical Information

Install Site	Open Field, non Sandy
Angle of Inclination	0-45°
Structure Height	3m Less
Max Wind Speed	up to 60m/s
Snow Load	1.4KN/m ²
Rail Material	Aluminum Alloy
Post Material	Hot-dip Galvanized Steel Q235
Finishing	Anodized
	Post Height Deviation: 10mm
Adjustability	Post Angle Deviation: 2°
	Post Verticality Deviation: 2°
Pile Driving Depth	1000~2000mm

INSTALLATION STEPS



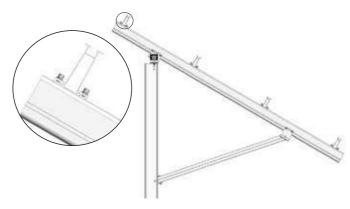
Step 1: Pile the Open Post by Pile Machine



Step 2: Install and adjust the Top Cap



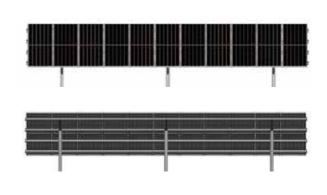
Step 3: Install the Assembly of Beam



Step 4: Install the Rail by Rail Clamp







Finish

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COMPONENTS

System Overview



Item No.	Description
GS-PG-OP2950	Open Post 2950mm

Material: Q235 Steel

GS-PG-TC	Assembly of Top Cap
GS-PG-BA30-2740	Assembly of PG Beam, 30deg, 2740 - For module length 1400~1700mm - High pre-assembly
GS-MR-Length	GS MR Rail
GS-MR-SP	GS MR Rail Splice
GS-MR-C60	GS MR Rail Clamp

Material: Aluminum Alloy 6005-T5

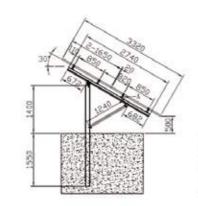


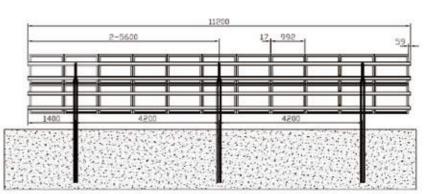
Project Information

Solar Panel Size:	1650*992*46mm
Tilt Angle:	30 Deg
Module Orientation:	Portrait
Unit Array:	2*11 (22pcs panels)

Flood Height:	500mm
Wind Speed:	<45m/s
Soil Condition:	Non Sandy
Pile Height:	1500mm

2D Planning Drawing





Side View

Front View

Components List

Item	Description	Spec.	Qty	Package
GS-MR-5600	GS MR Rail 5600	5600mm	8pcs	148pcs/Pallet
GS-MR-SP	GS MR Rail Splice	400mm	4pcs	9pcs/Box,2Boxes/CTN
GS-MR-C60	GS MR Rail Clamp	60mm	24pcs	100pcs/Box,4Boxes/CTN
GS-IC-F46	Inter Clamp Kit	46mm	40pcs	100pcs/Box,4Boxes/CTN
GS-EC-F46	End Clamp Kit	46mm	8pcs	100pcs/Box,4Boxes/CTN
GS-PG-BA30-2740	Assembly of PG 2# Beam	30°	3pcs	120pcs/Pallet
GS-PG-TC	Aluminum Top Cap	80mm	3pcs	8pcs/Box,2Boxes/CTN
GS-PG-OP2950	Open Post 2950	2950mm	3pcs	45pcs/Pallet

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4. GS-MR-Length

5. GS-MR-SP

6. GS-MR-C60



FENCE

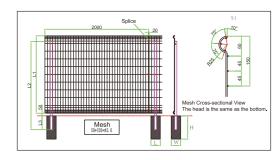


Reasons to Install the Fence

- 1.Regulated by national law in some countries
- 2.Prevention of burglary
- 3.Insurance fee calculation based on with or without fence
- 4. Safety: keep child or passer-by away

Grace Solar Fence Benefits

- 1. Applicable not only on flat ground, but also a slope ground. (within limited tilt degree)
- 2.Standard fence with good performance in strength and duration. Easy installed, high quality but in competitive price.
- 3. Wide recognitions from both MW level power plants and ordinary ground power plant.

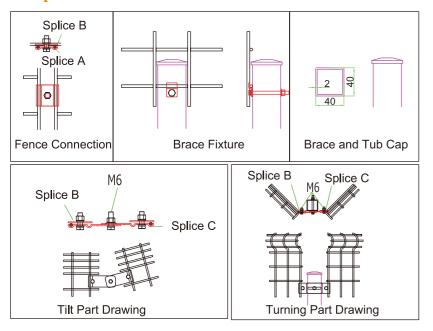


J Type Fence Drawing

Note:

- a.Minimum order quantity is 500 meters.
- b. Width of one unit fence is 2 meters.
- c.Fence surface treatment is dipping, colored white.

Components Connection



Dimension

Item	Mesh Height L1	Brace Tube Height L2		Mesh Length	Connection	Concre	ete Dime W	ension H
J800	800	880	150	2000	2	180	180	450
J1200	1200	1310	180	2000	3	180	180	450
J1500	1500	1680	250	2000	3	180	180	450
J1800	1800	2030	300	2000	3	200	200	450
J2000	2000	2230	300	2000	4	250	250	450

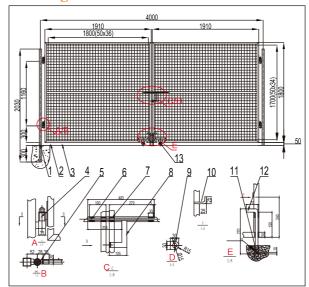
Referential Image



Gate Guidance

Grace Solar Fence is highly pre-assembled in the factory. Easy installed on site.

Drawing





Component List

No.	Description	Spec.	Material	Qty	Unit	Note
1	Brace	40*40*2.0	Q235	2	PCS	Cap included
2	Frame	30*20*1.2	Q235	2	PCS	Rib included
3	Mesh	50*50	Q235	2	PCS	¢ 3.6
4	Pivot	CZ-03	Q235	4	PCS	
5	Rib	25*25*3	Q235	4	PCS	L-150
6	Latch I	¢ 14	Q235	1	PCS	
7	Tube	¢ 25*1.5	Q235	8	PCS	
8	The Lock Plate	30*3	Q235	1	PCS	
9	Knob	30*4	Q235	2	PCS	
10	Hook	¢6	Q235	2	PCS	
11	Half Round Head Screw	M5*10	Q235	3	SET	
12	Latch	¢ 16	Q235	2	PCS	
13	Wheel	¢ 75	Q235	2	PCS	



GROUND SCREW





GS Ground Screw is the new foundation type for the PV ground mounting system. This solution is

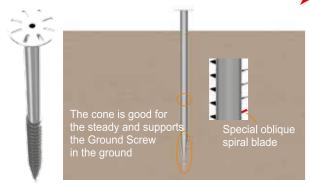
applied widely. It can minimize the impact on the

environment; it is easy and fast on installation,

greatly saving the installation time and cost. GS Ground Screw has a unique oblique spiral design, which greatly ensures the stability and robustness when withstanding the static load.

GS Ground Screw is surely your best choice.

Introduction



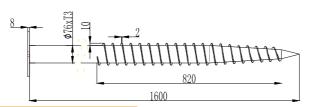
Features

- Item No.: GS-F76C-1600-T3
- Material: Steel, ISO 630 Fe360A
- Surface: Galvanized to DIN EN ISO 1461

Fc

- a Length: 1600mm
- b Outer Diameter: 76mm
- c Inner Diameter: 70mm
- d Flange Diameter: 200mm





Cross-section Values and Burdens of GS Ground Screw

Item No.	Tube Dia	Tube Thk	Fc	Ft	Fh
	mm	mm	KN	KN	KN
GS-F76C-1600-T3	76	3.0	32.00	20.00	8.50

Fc: compression force Ft: tension force Fh: horizontal force



Approval and Certificate



SGS Aluminum Alloy Quality Report



Japan Utility Model Registration Certificate



TUV Certificate



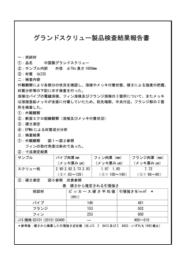
SGS Salt Spray Test Report



ISO9001:2008



UK MCS Certificate



Screw Product Inspection Result Report



Quality Warranty



Australia AS1170.2 Certificate